

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in Cleansing Arrangements for Filtering or Straining Cloths

I, GUSTAF ADOLF STAAP, a Swedish subject, of Box 3244 D, Gävle 3, Sweden, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the cleansing of filtering or straining cloths, particularly of the kind having the shape of a band which is moved continuously in its longitudinal direction. The invention is especially applicable in the cellulose industry for cleansing Fourdrinier wires, water remover webs, straining and filtering webs and the like.

For the purpose of cleaning straining webs in the form of a band which is continuously moved in its longitudinal direction, use has hitherto generally been made of a tube provided with a row of fine nozzle holes and extending transversely to the direction of movement of the straining web. As a cleansing or flushing fluid, cold or hot water is preferably used, but use has also been made of steam or compressed air. In said known cleansing arrangement, only those portions of the straining web which pass under each individual fluid jet become effectively cleansed, however, while between said flushed areas stripes are formed consisting of impurities, such as resin particles, dirt, non-desired fibres or the like, which settle on the straining web and reduce the straining capacity thereof. On account of the very great number of fluid jets in said known arrangement, the consumption of flushing fluid becomes very high. In order to improve the straining capacity and reduce the consumption of cleansing fluid, it has been proposed to make the nozzle tube displaceable in its longitudinal direction and to reciprocate the same, to cause the fluid jets consecutively to sweep over the entire breadth of the straining web, and moreover to increase somewhat the distance between the nozzle holes and increase the diameters thereof, so that for the same consumption of water, more powerful and effective cleansing jets are obtained. In view of the repeated reversal of the direction of movement, the speed of movement of the nozzle tube must be kept comparatively low, however, so that also in said improved arrangement the number of cleansing jets necessarily becomes great and the consumption of water or other cleansing fluid, considerable.

The present invention has for one of its objects to provide an arrangement for cleansing straining webs and the like by means of jets of fluid, which arrangement operates effectively with a reduced consumption of cleansing fluid.

According to the present invention each nozzle is arranged to perform a rapid revolving movement in a preferably circular path, the said path being substantially parallel with the straining web, so that a fluid jet leaving the nozzle will sweep over a certain zone of breadth of the straining web twice for every revolution of the nozzle.

Preferably, two or more jet-producing nozzles are combined to form a unit which sweeps over the same zone of breadth and two or more such units are arranged in a row in such mutual positions that the breadth zones of the filtering web swept over by the respective units will touch or only slightly overlap one another. In the said arrangement, in which no sudden reversals of the direction of movement of the nozzles or jets respectively, occur, it

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metres, and the water pressure between the limits 2.5 and 6 kg/cm². The arrangement according to the invention, with revolving or rotating jet nozzles may be used to advantage also when steam or a gas is used as a cleansing fluid, or when gaseous and liquid cleansing fluids are used simultaneously. A cleansing fluid in the form of steam or a gas may be used to particular advantage in cases where a supply of water is scarce or where it is desired to avoid dilution of the back water.

The cleansing arrangement shown may be modified in various ways within the scope of the invention. Thus the mouths of the nozzle pipes need not necessarily move in a circular path, although such arrangement would be the simplest one in every respect, and, furthermore, the nozzle units need not be designed as reaction turbines but may be rotated from a separate driving source. Other modifications are, of course, conceivable.

What I claim is:—

1. An arrangement for cleansing straining or filtering webs in the form of longitudinally moving bands, particularly for cleansing Fourdrinier wires, water remover webs, filtering webs and the like used in the cellulose industry, and comprising one or more nozzles which communicate with a source of fluid under pressure and are directed towards the straining web, wherein each nozzle is arranged to perform a rapid revolving movement in a preferably circular path, the said path being substantially parallel with the straining web, so that a fluid jet leaving the nozzle will sweep over a certain zone of breadth of the straining web twice for every revolution of the nozzle.
2. An arrangement according to claim 1, wherein two or more jet nozzles are combined to form a unit allotted to a certain zone of breadth of the filter web.
3. An arrangement according to claim 2, wherein each nozzle unit comprises two diametrically arranged jet nozzles.
4. An arrangement according to claim 2

or 3, wherein two or more nozzle units are arranged each to sweep over a corresponding zone of breadth of the straining web.

5. An arrangement according to claim 4, wherein the nozzle units are so arranged, preferably in a row forming a right angle with the direction of movement of the filtering web, that the breadth zones of the filtering web swept over by the jets of the respective units touch or only slightly overlap each other.

6. An arrangement according to any of claims 1 to 5, wherein the jet nozzles are inclined rearwardly with respect to their path of movement, so that the reaction force of a fluid jet leaving a nozzle has a component which has a driving action on the nozzle unit.

7. An arrangement according to any of claims 4, 5 or 6, and comprising two or more nozzle units arranged in a row, wherein the jet nozzles are inclined outwardly from the centre of their path of movement.

8. An arrangement according to any of claims 2 to 7, wherein each nozzle unit consists of one or more nozzle pipes which extend radially from a rotatably journaled centre and which at their free ends are bent over towards the straining web.

9. An arrangement according to claim 8, wherein two or more nozzle units are rotatably journaled on a common supply pipe for pressure fluid which extends across the straining web.

10. An arrangement for cleansing straining or filtering webs in the form of longitudinally moving bands, constructed and arranged substantially as described herein and shown in the accompanying drawings.

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